

3.8 Shasta Lake

Daily minimum, maximum, and average values of temperature (T), relative humidity (RH), scalar wind speed (S), and standard deviation of the unit vector wind direction (σ_θ) are listed in Tables 31, 32, 33, and 34. In addition, unit vector wind direction (θ) and vector wind speed (U) for each day are also listed in these tables. The 5-min values of θ and U were used to construct wind roses for June, July, August, and September which are shown in Figures 49, 50, 51, and 52, respectively.

Like many of the monitoring sites in the San Joaquin Valley, the Shasta Lake was hot and dry. Average daytime high temperatures were about 35 °C with nighttime lows of 17 to 18 °C. The relative humidity ranged from a low of 15 to 20% during the day to a high of 60 to 70% at night. Scalar average wind speeds were generally light with values ranging from 2 to 3 m s⁻¹. The predominate flow in June and July is from the north-northwest with winds up to 3 to 4 m s⁻¹. In August, the wind regime becomes bimodal with wind flow from the north-northwest and south-southeast. By September, the predominate flow is from the south-southeast. However, a significant portion of the wind data were lost in September due to failure in the anemometer electronics. Thus, the September wind rose may not be representative of the wind flow for Shasta Lake.

Table 31. Shasta Lake monthly weather and wind summary for June.

Day	T (°C)			RH (%)			S (m s ⁻¹)			θ (deg)	U (m s ⁻¹)	φ _θ (deg)		
	min	max	avg	min	max	avg	min	max	avg			min	max	avg
1	16.7	32.5	24.6	10.7	57.4	22.6	0.4	4.6	2.5	339.8	1.4	6.8	70.9	21.2
2	14.6	31.6	23.5	14.4	63.0	36.9	0.5	4.3	1.9	352.0	0.4	6.3	72.3	24.7
3	14.9	34.8	24.5	7.1+	61.7+	33.9+	0.5	4.2	1.5	357.5	0.7	7.3	73.2	26.3
4	14.5	32.6	23.9	14.3	59.2	35.8	0.3	4.4	1.8	326.6	0.2	6.6	71.3	25.9
5	11.3	27.7	19.6	23.1	76.9	47.8	0.3	3.1	1.4	173.8	0.4	6.1	73.6	26.5
6	12.9	30.5	21.8	21.1	77.3	47.6	0.2	3.1	1.4	163.3	0.2	5.9	75.9	27.5
7	12.1	25.9	18.8	30.3	97.4	58.9	0.3	3.8	1.8	206.1	0.4	7.0	76.9	24.7
8	12.6	20.5	15.1	65.1	97.7	90.2	0.2	2.4	0.9	168.1	0.3	10.4	73.7	28.9
9	11.1	21.7	16.4	47.7	95.8	70.6	0.2	3.9	1.4	194.9	0.2	9.5	70.0	28.3
10	11.3	25.0	18.1	30.8	78.1	51.6	0.4	3.1	1.5	272.7	0.2	10.1	75.0	29.3
11	11.6	27.4	20.2	29.6	79.9	47.2	0.3	3.9	1.6	333.7	0.8	10.1	78.2	29.5
12	16.0	28.4	22.5	34.8	77.3	52.9	0.2	4.1	1.7	268.6	0.7	9.3	73.0	27.1
13	16.9	38.5	27.3	16.4	71.6	36.8	0.5	4.3	2.1	353.7	1.8	7.8	76.1	24.4
14	26.8	41.8	33.2	12.8	38.6	23.6	1.1	5.6	3.6	354.5	3.3	9.7	37.8	21.3
15	22.2	39.3	31.4	14.1	51.8	27.6	0.5	5.2	2.7	356.0	2.4	14.9	68.3	25.5
16	23.6	35.8	29.5	12.4	30.5	17.6	0.8	6.9	3.4	358.7	3.1	15.9	69.9	25.1
17	21.9	38.5	29.8	8.8	51.3	18.2	0.6	5.2	2.9	359.4	2.5	9.3	73.1	24.2
18	16.4	31.6	24.2	33.0	78.2	53.5	0.2	3.5	1.6	164.7	0.5	10.4	72.9	25.1
19	16.9	35.8	26.0	14.3	89.7	40.3	0.2	4.9	2.3	356.4	2.1	9.6	74.0	23.6
20	22.8	38.7	29.2	9.9	41.7	23.4	0.4	6.1	3.4	352.3	3.2	8.6	55.3	20.3
21	18.0	39.2	29.9	12.8	58.9	30.5	0.2	4.8	1.7	339.5	0.5	10.0	77.1	27.6
22	19.9	37.6	29.0	19.5	69.7	38.2	0.2	3.3	1.6	339.3	0.4	10.5	74.2	28.0
23	17.3	36.4	26.9	13.7	76.9	43.0	0.2+	3.3+	1.5+	193.0+	0.3+	7.7	71.8	25.1
24	18.5	37.2	27.5	12.8	64.8	37.4	0.4	3.1	1.6	355.4	0.5	5.9	71.6	26.4
25	19.6	38.2	28.6	16.0	62.6	39.5	0.3	3.8	1.4	343.3	0.5	7.2	80.6	28.0
26	22.0	40.5	30.8	14.5	63.3	36.7	0.5	4.3	1.9	336.4	0.8	8.8	74.1	25.0
27	25.0	40.4	31.6	12.7	54.1	29.8	0.4	4.4	2.2	343.3	1.5	9.2	72.2	23.3
28	24.5	42.1	32.3	10.7	59.9	30.3	0.2	4.1	1.8	337.0	0.8	9.6	78.1	26.8
29	24.3	39.7	32.1	15.8	63.5	31.3	0.2	4.1	2.0	343.0	0.7	10.4	70.8	25.2
30	17.9	34.3	26.3	22.8	79.5	50.8	0.2	3.6	1.4	164.2	0.5	9.8	57.9	25.5
min	11.1	20.5	15.1	7.1	30.5	17.6	0.2	2.4	0.9		0.2	5.9	37.8	20.3
max	26.8	42.1	33.2	65.1	97.7	90.2	1.1	6.9	3.6		3.3	15.9	80.6	29.5
avg	17.8	34.1	25.8	20.1	67.6	40.1	0.4	4.2	2.0	348.6	0.8	9.0	71.3	25.7

Explanation of Symbols:

- All data unavailable for day
- * More than two hours of data unavailable
- + Two hours or less of data unavailable
- (no symbol) All data available for day

Table 32. Shasta Lake monthly weather and wind summary for July.

Day	T (°C)			RH (%)			S (m s ⁻¹)			θ (deg)	U (m s ⁻¹)	φ _θ (deg)		
	min	max	avg	min	max	avg	min	max	avg			min	max	avg
1	13.9	30.4	22.8	22.3	78.0	51.2	0.2	3.4	1.3	170.5	0.5	8.1	69.8	26.9
2	15.4	30.8	23.2	22.6	79.9	49.6	0.2+	4.8+	1.8+	231.3+	0.1+	7.3	79.0	29.1
3	14.0	29.5	21.9	24.7	82.2	52.0	0.2	4.8	1.7	178.2+	0.1+	8.0+	79.2+	28.8+
4	16.7	28.9	21.5	25.3	80.9	46.3	0.3	4.4	2.1	337.5	1.5	8.5	74.5	25.0
5	14.1	24.0	18.8	40.5	88.7	69.8	0.2+	3.5+	1.5+	292.3+	0.2+	4.8	74.2	24.9
6	15.1	27.8	21.2	22.7	78.6	52.8	0.3	4.2	1.7	329.8	0.7	11.4	68.9	26.8
7	14.3	28.7	20.8	19.1	82.5	52.1	0.2+	2.9+	1.3+	216.1+	0.2+	0.4	72.9	26.2
8	11.9	31.3	21.7	13.2	84.6	45.8	0.2	3.0	1.4	334.5	0.2	10.2	74.9	28.0
9	16.1	35.8	25.7	12.6	67.1	36.9	0.2	4.5	1.8	353.2	1.0	8.6	77.9	27.8
10	17.5	35.2	26.6	13.6	61.9	35.3	0.4	4.4	1.9	333.4	0.4	11.3	74.5	25.8
11	16.8	36.5	26.5	14.4	72.1	38.6	0.3	3.1	1.6	334.0	0.1	11.9	74.5	28.4
12	17.6	36.4	27.3	12.7	62.3	35.3	0.3	3.6	1.7	354.4	0.2	10.6	67.8	26.6
13	15.9	33.3	24.6	19.7	79.3	47.8	0.3	3.7	1.5	168.3	0.3	9.4	75.4	25.6
14	15.7	35.0	25.3	12.7	82.8	41.7	0.2	2.9	1.4	350.9	0.2	8.5	72.5	28.5
15	18.1	35.6	27.0	11.1	58.0	30.7	0.5	3.8	1.8	348.7	0.4	11.0	76.2	27.2
16	19.8	33.7	25.8	15.5	55.3	37.0	0.2+	3.7+	1.5+	192.4+	0.4+	7.9	67.9	27.5
17	13.7	31.6	22.9	18.5	76.5	45.7	0.2	3.3	1.3	164.3	0.5	9.6	70.2	28.3
18	14.3	34.2	24.4	9.7	77.8	39.7	0.2	3.4	1.2	306.7	0.1	9.3	75.8	29.1
19	19.1	37.7	27.9	12.5	54.1	33.5	0.6	3.3	1.5	356.5	0.4	9.4	73.2	31.9
20	20.5	41.9	29.8	7.6	55.6	32.8	0.6	3.3	1.7	343.4	1.0	5.3	78.6	27.7
21	18.0	36.4	27.9	11.2	70.3	36.2	0.2+	4.2+	1.8+	179.5+	0.2+	1.4+	75.6+	26.3+
22	15.4	36.0	25.0	12.5	78.5	42.2	0.3	2.9	1.2	48.1	0.1	11.3	77.6	28.6
23	18.7	38.4	28.2	9.2	55.3	29.4	0.4	4.0	1.9	346.0	1.2	2.1	74.0	26.1
24	18.9	38.8	29.0	11.1	51.8	29.6	0.3	3.7	1.7	333.0	0.2	3.3	73.6	26.3
25	19.9	38.3	29.8	8.6	51.3	25.2	0.6+	4.2+	2.1+	330.4+	1.1+	4.7+	76.4+	24.7+
26	17.2	35.0	26.7	17.0	61.4	35.8	0.3	3.4	1.4	172.7	0.6	10.6	77.3	31.7
27	14.6	37.0	25.6	10.5	71.5	39.1	0.3	2.9	1.3	319.9	0.2	7.5	76.5	24.8
28	18.4	38.8	27.9	11.5	64.4	33.7	0.3	3.4	1.7	359.7	0.5	2.9	76.0	24.8
29	20.5	41.5	30.4	8.4	57.3	30.3	0.3	3.9	1.8	353.3	0.6	9.3	71.0	28.1
30	22.1	40.4	30.4	12.1	45.4	28.5	0.3	4.2	1.8	351.2	0.7	11.1	78.9	26.0
31	22.6	43.2	33.0	10.7	49.5	29.0	0.3	4.1	1.9	349.6	1.6	5.7	71.1	26.0
min	11.9	24.0	18.8	7.6	45.4	25.2	0.2	2.9	1.2		0.1	0.4	67.8	24.7
max	22.6	43.2	33.0	40.5	88.7	69.8	0.6	4.8	2.1		1.6	11.9	79.2	31.9
avg	17.0	34.9	25.8	15.3	68.2	39.8	0.3	3.7	1.6	339.1	0.3	7.8	74.4	27.2

Explanation of Symbols:

- All data unavailable for day
- * More than two hours of data unavailable
- + Two hours or less of data unavailable
- (no symbol) All data available for day

Table 33. Shasta Lake monthly weather and wind summary for August.

Day	T (°C)			RH (%)			S (m s ⁻¹)			θ (deg)	U (m s ⁻¹)	φ _θ (deg)		
	min	max	avg	min	max	avg	min	max	avg			min	max	avg
1	25.7	41.1	33.5	16.2	51.3	27.8	0.3	4.3	1.9	341.7	0.7	10.0	72.8	26.2
2	26.7	43.0	34.0	11.7	54.9	28.5	0.2	4.9	2.4	339.0	0.9	9.8	72.0	23.3
3	21.0	38.0	29.3	11.4	71.0	38.0	0.2+	4.0+	1.5+	162.5+	0.2+	8.6	77.6	24.0
4	16.9	36.7	26.7	11.9	66.5	34.0	0.4	3.1	1.6	27.9	0.0	9.5	68.0	25.2
5	22.4	40.0	29.8	7.8	48.3	27.3	0.3	3.8	1.9	349.6	0.7	12.3	74.8	25.8
6	21.5	41.0	30.1	10.3	55.5	33.4	0.3	3.2	1.5	350.5	0.2	10.1	74.2	28.5
7	18.8	35.6	27.9	24.3	71.8	42.9	0.3+	4.3+	1.7+	170.5+	0.8+	8.4	78.2	27.0
8	16.5	35.7	25.9	15.4	80.4	45.6	0.3+	3.3+	1.4+	174.1+	0.4+	0.9+	78.8+	25.9+
9	19.2	34.7	25.6	12.3	71.2	41.2	0.2	3.8	1.5	170.5+	0.3+	1.9+	79.3+	27.1+
10	14.7	31.7	23.2	19.5	71.6	42.7	0.2+	4.4+	1.6+	154.8+	0.3+	1.2+	78.8+	25.4+
11	16.5	37.5	26.5	9.7	65.9	33.8	0.4	8.5	1.9	345.0+	0.9+	2.4+	67.9+	25.6+
12	18.5	37.5	27.7	10.8	50.5	30.6	0.3+	4.4+	1.8+	348.9+	0.3+	2.8+	69.8+	26.4+
13	14.4	36.8	26.7	8.8	68.3	30.2	0.2+	3.4+	1.6+	333.3+	0.1+	1.2+	68.6+	26.9+
14	18.3	37.2	28.1	10.8	41.6	24.4	0.3+	5.3+	2.3+	343.6+	1.0+	1.8+	75.0+	26.4+
15	19.9	37.9	28.2	9.7	43.5	25.1	0.3+	5.8+	2.2+	341.6+	1.3+	5.3+	65.0+	23.8+
16	19.7	40.2	29.7	8.0	43.3	22.1	0.3+	6.1+	2.3+	346.1+	1.4+	1.6+	77.9+	25.5+
17	19.7	37.4	28.6	6.7	42.0	22.0	0.3+	6.1+	2.3+	330.2+	1.3+	1.1+	75.1+	26.2+
18	15.3	34.1	24.7	9.4	56.5	30.0	0.3+	4.4+	1.5+	183.5+	0.4+	2.5+	76.3+	31.9+
19	14.2	32.3	23.5	17.2	71.9	39.9	0.2+	3.7+	1.6+	168.8+	0.2+	3.0+	76.9+	24.9+
20	14.4	34.8	24.0	15.2	70.3	39.3	0.2+	5.9+	1.7+	353.2+	0.8+	1.9+	77.4+	25.3+
21	15.7	36.7	26.4	10.3	66.0	32.0	0.3+	5.3+	2.1+	347.2*	1.2*	2.0+	72.8+	21.1+
22	18.9+	36.0+	26.3+	11.0+	59.9+	31.8+	0.4*	5.0*	2.0*	348.8*	0.5*	1.2+	69.0+	22.1+
23	16.2	34.4	25.5	15.6	59.3	33.3	0.3	5.0	1.9	346.0+	0.1+	1.7+	74.9+	23.5+
24	13.3	35.4	24.2	9.8	81.1	41.4	0.3	3.5	1.3	355.6+	0.2+	1.0+	71.9+	25.6+
25	18.5	36.3	26.4	12.5	45.6	28.4	0.6	4.5	1.9	357.3+	0.8+	1.1+	75.5+	21.8+
26	18.4	36.0	26.5	9.8	52.5	29.5	0.3	3.9	1.8	351.0+	0.5+	2.3+	72.6+	23.5+
27	18.2	37.3	26.8	10.5	47.5	26.9	0.3	4.3	1.9	349.4+	0.7+	1.6+	68.5+	22.8+
28	19.3	39.0	27.4	9.3	46.5	27.5	0.5	5.4	1.7	354.5+	0.7+	2.8+	74.2+	23.1+
29	16.0	29.9	23.0	28.1	68.5	45.6	0.2+	4.2+	1.4+	145.4+	0.1+	2.4+	75.8+	25.6+
30	12.8	29.6	20.0	24.8	87.2	57.1	0.2	4.7	1.5	168.7+	0.7+	1.2+	77.3+	24.3+
31	12.8	24.5	18.4	38.3	88.3	65.8	0.3+	3.3+	1.3+	176.5+	0.7+	1.1+	72.6+	23.2+
min	12.8	24.5	18.4	6.7	41.6	22.0	0.2	3.1	1.3		0.0	0.9	65.0	21.1
max	26.7	43.0	34.0	38.3	88.3	65.8	0.6	8.5	2.4		1.4	12.3	79.3	31.9
avg	17.9	36.1	26.6	13.8	61.3	34.8	0.3	4.6	1.8	343.9	0.3	3.7	73.9	25.1

Explanation of Symbols:

- All data unavailable for day
- * More than two hours of data unavailable
- + Two hours or less of data unavailable
- (no symbol) All data available for day

Table 34. Shasta Lake monthly weather and wind summary for September.

Day	T (°C)			RH (%)			S (m s ⁻¹)			Θ (deg)	U (m s ⁻¹)	σ_θ (deg)		
	min	max	avg	min	max	avg	min	max	avg			min	max	avg
1	13.2*	18.8*	14.6*	66.3*	97.6*	92.8*	0.3*	4.2*	1.6*	176.0*	1.2*	3.1+	77.5+	27.7+
2	-----	-----	-----	-----	-----	-----	0.5*	3.1*	1.6*	256.1*	0.3*	4.9*	71.8*	27.5*
3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7	19.2*	34.0*	27.4*	10.3*	47.2*	24.9*	1.0*	8.8*	3.7*	343.2*	1.0*	1.6*	54.4*	15.4*
8	14.9	31.5	22.6	17.5	63.2	38.9	0.4*	5.5*	2.9*	175.7*	1.4*	1.0+	76.7+	24.9+
9	18.0	32.4	23.2	18.3	53.6	36.9	1.3*	5.3*	4.1*	185.1*	1.8*	4.5+	68.2+	21.9+
10	15.7	33.2	23.3	15.8	63.2	41.1	1.6*	4.8*	3.1*	182.7*	2.3*	2.0+	74.4+	26.5+
11	16.8	35.3	24.6	13.7	68.8	42.2	-----	-----	-----	-----	-----	2.1+	78.9+	24.4+
12	18.5	36.1	25.7	9.4	59.3	34.0	-----	-----	-----	-----	-----	1.4+	72.2+	26.8+
13	20.9	35.6	27.2	13.7	63.0	29.8	-----	-----	-----	-----	-----	3.6+	70.5+	21.7+
14	17.9+	27.4+	21.9+	42.5+	82.5+	65.0+	-----	-----	-----	-----	-----	2.8+	81.0+	25.5+
15	16.5	29.5	21.7	27.4	91.7	65.0	-----	-----	-----	-----	-----	1.5+	69.3+	25.7+
16	14.5	32.7	23.3	22.2	84.5	50.6	-----	-----	-----	-----	-----	0.8+	77.8+	31.6+
17	18.6	36.5	27.5	16.7	63.4	35.0	-----	-----	-----	-----	-----	2.2+	67.9+	20.2+
18	26.0	39.5	31.4	12.2	43.5	23.7	-----	-----	-----	-----	-----	1.3+	40.4+	18.9+
19	26.2	39.9	31.6	14.9	41.4	27.2	-----	-----	-----	-----	-----	1.9+	52.7+	18.5+
20	24.4	38.6	30.7	15.3	49.1	27.1	-----	-----	-----	-----	-----	2.1+	73.6+	23.8+
21	16.7	27.3	23.2	21.0	64.8	47.2	-----	-----	-----	-----	-----	3.8+	77.8+	26.3+
22	12.4	21.5	16.1	47.7	94.8	77.6	-----	-----	-----	-----	-----	3.1+	64.1+	22.7+
23	10.4	27.1	17.8	15.6	87.7	42.2	-----	-----	-----	-----	-----	1.2+	70.0+	22.8+
24	9.6	29.8	19.5	12.9	65.6	35.8	-----	-----	-----	-----	-----	0.8+	76.4+	30.9+
25	14.0	31.5	21.6	12.3	57.7	34.1	-----	-----	-----	-----	-----	2.2+	72.6+	21.9+
26	15.6	32.5	22.6	16.5	63.3	33.4	-----	-----	-----	-----	-----	1.7+	76.3+	23.7+
27	17.2	33.8	23.7	15.4	63.7	38.3	-----	-----	-----	-----	-----	1.1+	74.9+	26.7+
28	11.5+	29.3+	19.8+	29.7+	87.9+	59.7+	-----	-----	-----	-----	-----	3.0+	74.4+	24.0+
29	13.7+	34.7+	24.7+	17.1+	86.0+	39.8+	-----	-----	-----	-----	-----	2.0+	75.7+	21.9+
30	18.2	37.4	27.2	14.4	52.1	31.3	-----	-----	-----	-----	-----	2.1+	74.3+	22.2+
min	9.6	18.8	14.6	9.4	41.4	23.7	0.3	3.1	1.6	-----	0.3	0.8	40.4	15.4
max	26.2	39.9	31.6	66.3	97.6	92.8	1.6	8.8	4.1	-----	2.3	4.9	81.0	31.6
avg	16.8	32.2	23.7	20.7	67.8	42.9	0.9	5.3	2.8	186.1	1.0	2.2	70.9	24.0

Explanation of Symbols:

----- All data unavailable for day
 * More than two hours of data unavailable
 + Two hours or less of data unavailable
 (no symbol) All data available for day

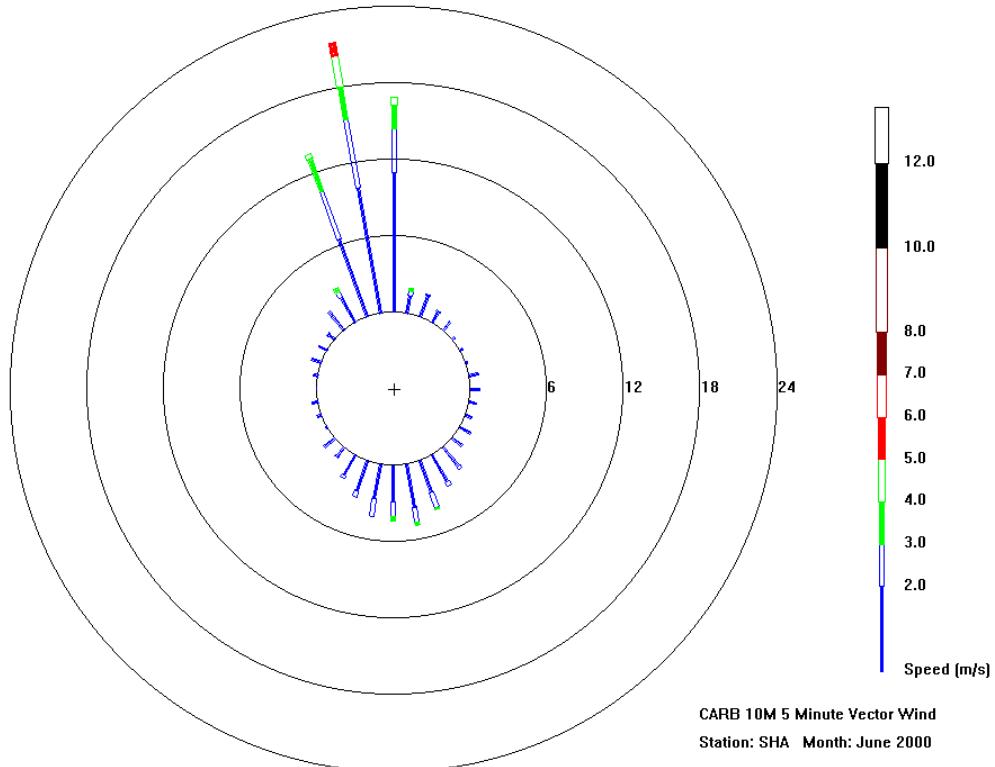


Figure 49. Shasta Lake wind rose for June.

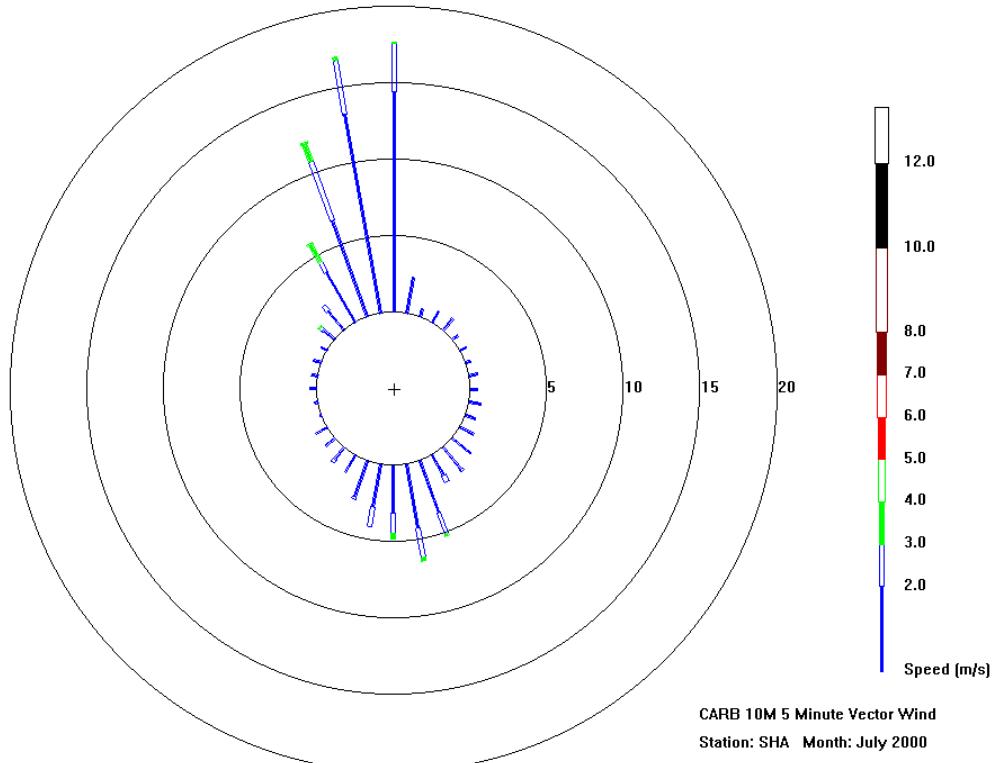


Figure 50. Shasta Lake wind rose for July.

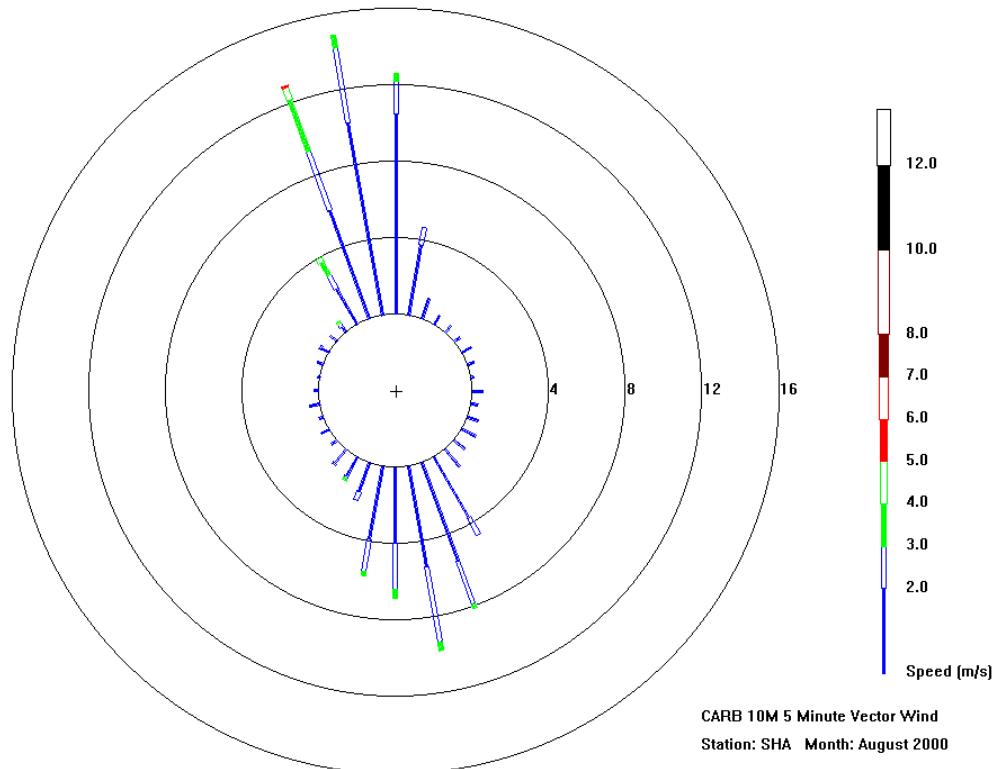


Figure 51. Shasta Lake wind rose for August.

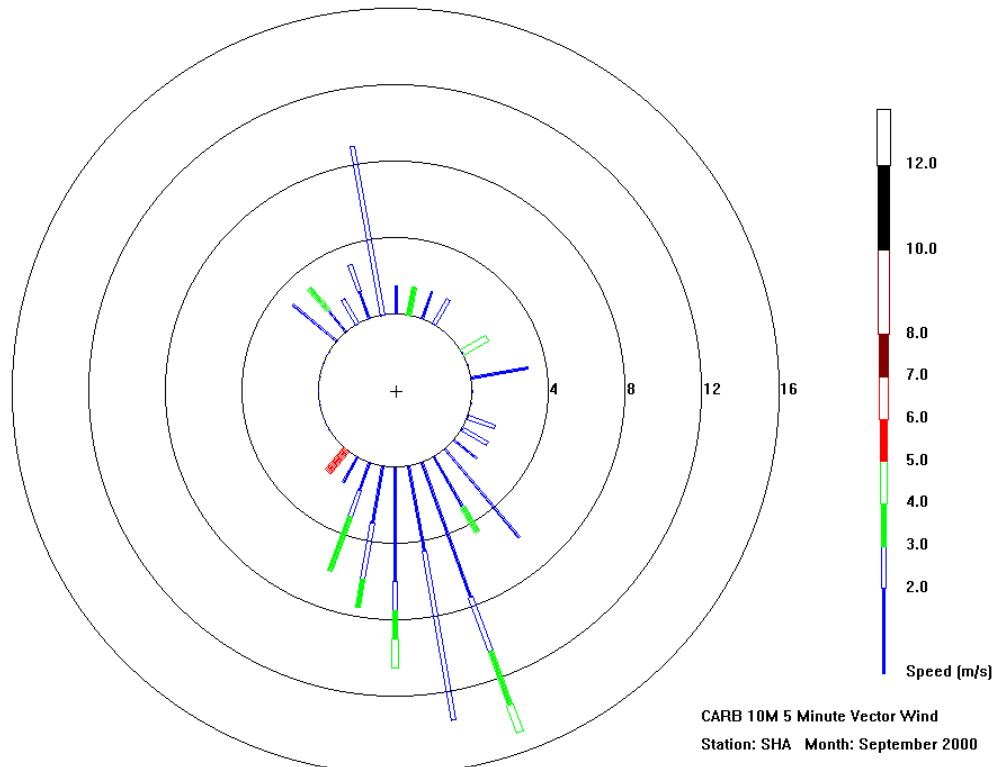


Figure 52. Shasta Lake wind rose for September.